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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,325	12/12/2003	Claude Beaulieu	86200-11	9090
7590 05/12/2005				
Stephan P. Georgiev SMART & BIGGAR Suite 3400 1000 de la Gauchetiere Street West Montreal, QC H3B 4W5 CANADA		EXAMINER KIANNI, KAVEH C		
		ART UNIT 2883		PAPER NUMBER
DATE MAILED: 05/12/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

11-A

Office Action Summary

Application No.

10/733,325

Applicant(s)

BEAULIEU ET AL.

Examiner

Kianni C. Kaveh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 39-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38, 48, 51 and 52 is/are rejected.
- 7) ☒ Claim(s) 4, 49 and 50 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

- Applicant's election without traverse of claims 1-38 and 48-52 in a paper submitted on 2/25/05 is acknowledged. The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claim 4 is objected to because of the following informalities: in the first line the claim the phrase 'in claim 4', the number should be changed to an appropriate number. Appropriate correction is required.

Specification

The title of the specification is objected to because an 'e' is missing between 'ind' and 'x' in the first line of the title, page 1. Correction is required.

Allowable Subject Matter

Claims 49-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 49-50 are allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the first and the second conditioned beams of electromagnetic radiation induce a predetermined gaseous profile in the substrate in combination with the rest of the limitations of the base claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-38 and 48 and 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Land (US 6067391).

Regarding claims 1-11, Land teaches an apparatus for treating a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1st parag.), comprising;

a) a first mask G2 for conditioning a first beam of electromagnetic radiation and producing a first conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G2);

b) a second mask G3 for conditioning a second beam of electromagnetic radiation and producing a second conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G3);

c) the first and the second conditioned beams of electromagnetic radiation (see fig. 14/16 items radiation beams) being characterized in that:

i) when they are directed toward the waveguide sensitive to electromagnetic radiation, a treatment area of the substrate sensitive to electromagnetic radiation is exposed to electromagnetic radiation (shown in at least fig. 14 and 16; see at least col. 9, last parag.-col. 10, 1st parag.);

ii) the first and the second conditioned beams of electromagnetic radiation interact to create an Interference pattern over a limited portion of the treatment area (shown in at least fig. 14 and 16; see at least col. 9, last parag.-col. 10, 1st parag.);

However, Landin the first embodiment does not specifically teach wherein the above waveguide is a substrate and that the above apodization is a gaussian apodization being symmetrical on either side of base value. Nevertheless, in another embodiment Land states that a waveguide exposed and effected/sensitive by/to the EM radiation can be substrate-waveguides (see at least col. 10, 1st parag.) and that waveguide/substrate portions being exposed to EM radiation being uniform in at least s/f (1,1) and f/s (3,U) Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made combine different embodiments of Land by substitute the above waveguide by a substrate/substrate-waveguide, and that it is obvious/well-known to those of ordinary skill in the art when the invention was made

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that uniform amplitude/wave form as shown in at least fig. 1, have s/f (1,1) and f/s (3,U) have apodization being symmetrical on either side of base value, in order to produce an apparatus that includes the above limitations, since such apparatus, motivated by, providing high transmission optical system with multiple refractive indices (see col. 2, 4th paraqq.).

Regarding claims 12-19, Land further teaches wherein the first beam of electromagnetic radiation and the second beam of electromagnetic radiation belong to different diffractive orders to create the interference pattern, a source of electromagnetic radiation from which is derived the first and the second beams of electromagnetic radiation (shown in at least fig. 10, items orders -2 - $+2$ from a source); a diffractive mask subjected to exposition of electromagnetic radiation by the source of electromagnetic radiation to produce the first and the second beams of electromagnetic radiation (shown in at least fig. 14, items diffrac. beams); including an optical system to focus the first and the second beams of electromagnetic radiation toward the optical fiber; wherein said source of electromagnetic radiation is coherent (shown in at least fig. 14, items diffr. Coherent beams on a fiber); wherein the coherent electromagnetic radiation is a UV laser (see col. 9, 3rd parag.); a substrate sensitive to electromagnetic radiation having an index of refraction modified (see at least fig. 1, item modified refractive index of a waveguide/substrate).

Regarding claim 20, Land teaches a method for Inducing a modification of the Index of refraction of a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1st parag.), comprising;

a) conditioning with a first mask a first beam of electromagnetic radiation and producing a first conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G2);

b) conditioning with a second mask a second beam of electromagnetic radiation and producing a second conditioned beam of electromagnetic radiation (see fig. 14/16 item mask/G3);

c) directing the first and the second conditioned beams of electromagnetic radiation toward the substrate sensitive to electromagnetic radiation to expose a treatment area of the substrate to electromagnetic radiation (see fig. 14/16 items directed radiation beams);

d) the first and the second conditioned beams of electromagnetic radiation interact to create an interference pattern over a limited portion of the treatment area (see fig. 14/16 items radiation beams are interfering over a limited portion of the treatment/grating area).

Regarding the limitation substrate, the arguments presented in rejection of claim 1 is analogous in rejection of claim 20.

Regarding claims 21-27 and 31-38 the arguments presented in rejection of claims 2-8 and 12-19 are analogous in rejection of claims 21-27 and 31-38.

Regarding claim 48, Land teaches method for inducing a modification of the index of refraction of a waveguide sensitive to electromagnetic radiation (shown at least in fig. 14 and 16 and see at least col. 9, last parag.-col. 10, 1st parag.), said method comprising:

a) generating a first beam of electromagnetic radiation and a second beam of electromagnetic radiation different from the first beam of electromagnetic radiation (shown in at least fig. 14, items two optical beams);

b) directing the first and the second beams of electromagnetic radiation toward the substrate sensitive to electromagnetic radiation to expose a treatment area on the substrate to electromagnetic radiation, the first and the second beams of electromagnetic radiation interacting to create an Interference pattern over a limited portion of the treatment area (see fig. 14/16 items radiation beams are interfering over a limited portion of the treatment/grating area).

Regarding the limitation substrate, the arguments presented in rejection of claim 1 is analogous in rejection of claim 48.

Regarding claim 51 Land, as stated above, teaches all limitations of claim 1. However, Land does not specifically teach wherein said first mask imparts a first cross-sectional shape to the first beam of electromagnetic radiation, said second mask imparts a second cross-sectional shape to the second beam of electromagnetic radiation, the first cross-sectional shape being different from the second cross-sectional shape. Nevertheless, Land states that the above cross-sectional for forming beam/grating pattern can be in variety of shapes (see figure 12a, different

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shapes/slotted cross-section for beam forming, and col. 15, lines 15-35, and col. 18, lines 30-34, and col. 30, lines 31-52). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to produce different cross-sectional shapes for producing a first beam that is different than that of the second beam in order to produce an apparatus that includes the above limitations, since such apparatus, motivated by, providing high transmission optical system with multiple refractive indices (see col. 2, 4th paraqq.).

Regarding claim 52, Land further teaches wherein said first mask imparts a phase shift to the first beam of electromagnetic radiation (see at least col. 13, 4th parag.).

Citation of Relevant Prior Art

Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Torman 20010043774

Torman 6553163 B2

Trepanier et al. 20040008413

Espindola et al. 5953471

Domash et al. 6771857

Kristensen et al. 20020015919

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or:

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



K. Cyrus Kianni
Patent Examiner
Group Art Unit 2883

May 9, 2005